MINI PROJECT

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TOPIC:

"WATER COOLERS IN MANIPAL UNIVERSITY HOSTELS,JAIPUR."

INTRODUCTION:

This project is about water dispenser working and performance in **MANIPAL UNIVERSITY JAIPUR (HOSTEL) .**

So , A **water dispenser**, known as **water cooler** (if used for cooling only), is a machine that cools and dispenses water with a refrigeration unit. It is commonly located near the restroom due to closer access to plumbing. A drain line is also provided from the water cooler into the sewer system.

Water coolers come in a variety of form factors, ranging from wall-mounted to bottle filler water cooler combination units, to bi-level units and other formats. They are generally broken up in two categories: point-of-use (POU) water coolers and bottled water coolers. POU Water coolers are connected to a water supply, while bottled water coolers require delivery (or self-pick-up) of water in large bottles from vendors. Bottled water coolers can be top-mounted or bottom-loaded, depending on the design of the model . In manipal university we use **point of use** water cooler.

TYPE: Water dispensers can be directly connected to the in-house water source for continuous dispensing of hot and cold drinking water. It is commonly referred to as POU (Point of Use) water dispensers. POU units are generally more hygienic than bottled water coolers, provided the end user has access to clean water sources.

FILTRATION:

Filtration methods include reverse osmosis, ion exchange, and activated carbon. Reverse osmosis works differently from chemical or ultraviolet protection, using a membrane that has fine pores, passing H_2O while preventing larger molecules such as salts, carbonates, and other micro-organisms from passing through it. If there is insufficient energy to naturally force the water through the membrane, a powerful pump is required, resulting in potential high energy costs. In addition, RO units are capable of softening water. Some living micro-organisms, including viruses, are capable of passing through an RO unit filter.[6]

Deionizers or demineralizers use resins exchange to remove ions from the stream of water and are most commonly twin-bed or mixed-bed deionizers. It is often used in sterile manufacturing environments

such as computer chips, where deionized water is a poor conductor of electricity.

Inactivated carbon, raw materials such as lignite, coal, bone charcoal, coconut shells, and wood charcoal are used, developing pores during activation when partly burning away carbon layers. In most cases, activated carbon is a single-use material as regeneration is often not possible on-site. Granular activated f carbon (GAC) is most commonly used in the filtration of the water cooler. Regular sanitization using hot water and steam is required to limit bacterial growth.

Filtration is a process used to separate solids from liquids or gases using a filter medium that allows the fluid to pass through but not the solid . The term **'filtration'** applies whether the filter is mechanical , biological , physical . The fluid that passes through the filter is called the **filtrate .**

WORKING:

Inside a water cooler is a valve that prevent the water from the bottle flooding the water cooler. the water inside the water cooler is fed into a reservoir , where it is cooled using a refrigerant. A refrigerant is cooling medium that is circulated in pipes that are located close to the reservoir in the water cooler. the

refrigerant changes from a liquid to a gas as it moves in a pipes towards the reservoir because of the pressure in the pipes created by a compressor inside the water cooler. the cooled gas in the water pipe is forced through a valve to make it even colder.

when the refrigerant is in a gas form and circulating in the pipes ,it has the ability to absorb the heat away from the mineral water in the reservoir , leaving a cool and refreshing water that is readily available.

As people dispense water , the machine will refill the reservoir and the process begin again.

STUDY CONDUCTED:

- TOTAL NUMBER OF WATER COOLER IN MANIPAL HOSTELS:
- MAINTAINENCE PERIOD:
- PIRIFICATION QUALITY :
- COMPANY OF THE WATER COOLER:

CALCULATIONS:

A. TOTAL LITERS OF WATER USED PER DAY:

MACHINE INTAKE-

FOR TOTAL NUMBER OF COOLER PRESENT:

CONCLUSIONS:

- THE WATER IS PURIFIED IN THE MANIPAL UNIVERSITY HOSTELS.
- MONTHLY MAINTAINENCE IS DONE TO CHECK THE PURITY OF WATER AND MAINTAINING IT.
- THERE SHOULD BE SOME TREATMENT PLAN FOR WASTEWATER.AND ALSO THE TAP SHOULD BE CHECK BECAUSE SOMETIMES IT REMAINS OPEN AFTER USING IT AND CAUSE WATER WASTAGE.
- THERE IS 24 HOUR ELECTRICITY AND WATER SUPPLY TO THE MACHINE.SO ,NO ON REMAIN EMPTY.
- THE COOLER WHICH THEY USE IS OF RENOWN BRAND AND IT IS ECONOMICALLY BENIFICIAL FOR THE HOSTEL.

REFERANCE AND ACKNOWLEDGEMENT:

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2) www.aquaidwatercoolers.co.uk.

3) www.kent-co-in.cdn.ampproject.org.

4) HOSTEL ADMINISTRATION FACULTY.

5) HOD,CHEMICAL DEPARTMENT. MUJ.